

REMARKS/ARGUMENTS

This Amendment is being filed in response to the Office Action dated April 16, 2009. Reconsideration and allowance of the application in view of the amendments made above and the remarks to follow are respectfully requested.

Claims 1-23 are pending in the Application.

In the Office Action, claim 16 is rejected under 35 U.S.C. §112, second paragraph. This rejection of claim 12 under 35 U.S.C. §112, second paragraph is respectfully traversed. However, in the interest of expediting consideration and allowance of the pending claims, the Applicants have elected to amend claim 16. Accordingly, it is respectfully submitted that claim 16 is in proper form and it is respectfully requested that this rejection under 35 U.S.C. §112, second paragraph, be withdrawn.

In the Office Action, claims 1, 5, 10-15, 22 and 23 are rejected under 35 U.S.C. §103(a) over Publication entitled "Nonlinear Photoluminescence from Multiwalled Carbon Nanotubes; vol. 4461; pages 56-64; August 2001; to Brennan ("Brennan") in view of U.S. Patent Publication No. 2002/0162946 to Jordan ("Jordan"). Claims 2 and 3 are rejected under 35 U.S.C. §103(a) over Brennan in

view of Jordan in further view of U.S. Patent No. 6,096,496 to Frankel ("Frankel"). Claims 16-17 are rejected under 35 U.S.C. §102(a) over Brennan. Claim 4 is rejected under 35 U.S.C. §103(a) over Brennan in view of Jordan in further view of U.S. Patent No. 5,753,930 to Dutton ("Dutton"). Claims 6-9 are rejected under 35 U.S.C. §103(a) over Brennan in view of Jordan in further view of U.S. patent No. 7,129,554 to Lieber ("Lieber"). Claim 18 is rejected under 35 U.S.C. §103(a) over Brennan in view of U.S. Patent No. 6,649,946 to Bogner ("Bogner"). Claims 19-20 are rejected under 35 U.S.C. §103(a) over Brennan in view of U.S. Patent No. 6,514,113 to Lee ("Lee").

The rejection of claims 1-23 is respectfully traversed. It is respectfully submitted that claims 1-23 are allowable over Brennan alone and Brennan in view of Jordan alone and in view of any combination of Frankel, Dutton, Lieber, Bogner and Lee for at least the following reasons.

It is undisputed that Brennan does not "disclose wherein the source of electromagnetic radiation, the at least one photoluminescent carbon nanotube and the detector are together configured to perform an optical signal processing operation of the optical signal processing device." (See, Office Action, page 6.)

Jordan is cited to provide that which is admitted missing from Brennan, however, it is respectfully submitted that reliance on Jordan is misplaced.

Particularly, Jordan, FIG. 4 and paragraphs [0020] and [0023] are cited for providing that which is admitted missing from Brennan however, it is respectfully submitted that reliance on these portions of Jordan or any portions of Jordan for that matter are misplaced.

"FIG. 4 [of Jordan shows] an array 50 of optical detector elements based on system 10 ..." (See, Jordan, FIG. 4 and paragraph [0024], emphasis added.) While FIG. 4 of Jordan does show an addressing measurement device 52 receiving an output of the array 50, Jordan provides that "measurement device 52 functions as an individual measuring device (analogous to measurement device 22 described above) for all of elements 18." (See, Jordan, paragraph [0025], emphasis added.)

Jordan, in describing device 22 is clear that "measuring device 22 which can be an ammeter that measures current, a voltmeter that measures voltage, an electron counter that counts electrons reaching end 18B, or a device that measures any

combination of current, voltage and electron counts." (See, Jordan, FIG. 1 and paragraph [0016].)

Accordingly, Jordan clearly does not provide an optical detector and merely detects an electrical characteristic of the carbon nanotube through use of the measuring device 22, 52, since clearly, the measuring device 22, 52 is not an optical device. Clearly, the optical detector system 40 including the array 20 and the electrical signal detector 52 do not perform an optical signal processing operation since the detector 52 is an electrical signal detector and therefore, does not provide an optical operation.

It is respectfully submitted that the optical signal processing device of claim 1 is not anticipated or made obvious by the teachings of Brennan in view of Jordan. For example, Brennan in view of Jordan does not disclose or suggest, an optical signal processing device that amongst other patentable elements, comprises (illustrative emphasis added) "an optical component, the optical component comprising at least one photoluminescent carbon nanotube configured to emit light at wavelengths varying non-linearly with the intensity of said light, and an optical detector of optical electromagnetic radiation, wherein the source of electromagnetic radiation, the at least one photoluminescent carbon nanotube and

the optical detector are together configured to perform an optical signal processing operation of the optical signal processing device" as recited in claim 1 and as similarly recited in claim 5. Each of Frankel, Dutton, Lieber, Bogner and Lee are introduced for allegedly showing elements of the dependent claims and as such, do nothing to cure the deficiencies of Brennan in view of Jordan. Claims 2-4, 6-15 and 22 respectively depend from one of claims 1 and 5 and accordingly are allowable for at least this reason as well as for the separately patentable elements contained in each of the claims. Accordingly, separate consideration and allowance of each of dependent claims 2-4, 6-15 and 22 is respectfully requested.

It is also respectfully submitted that the optical device of claim 16 is not anticipated or made obvious by the teachings of Brennan. For example, Brennan does not disclose or suggest, an optical device that amongst other patentable elements, comprises (illustrative emphasis added) "at least one photoluminescent carbon nanotube comprising a first side and a second side, wherein in response to an input of electromagnetic radiation on the first side, light is emitted from the second side over a range that includes wavelengths from 600 to 700 nm, wherein an intensity of

emitted light reaches a highest maximum at a wavelength greater than or equal to 600 nm and less than or equal to 700 nm" as recited in claim 16. While the Office Action relies on FIG. 2 of Brennan for showing "wherein an intensity of emitted light reaches a highest maximum at a wavelength greater than or equal to 600 nm and less than or equal to 700 nm ..." (see, Final Office Action, page 4), it is respectfully submitted that reliance on the indicated portions of Brennan or any portions for that matter are misplaced. While Brennan does show a peak intensity at 660 nm which it is not disputed is between 600 nm and 700 nm, it is clear from Brennan that the peak intensity at 660 nm is merely a local maximum in that in a wavelength in a range between 800 nm and 900 nm, the intensity of emitted light reaches a higher maximum intensity that far exceeds the intensity of emitted light in the range between 600 nm and 700 nm.

Further, Brennan is clear that (emphasis added) "Figure 2 shows a typical PL spectrum, which is characterized by a broad peak at 660 nm followed by a plateau beyond 730 nm. No discernible differences were observed between the GP and KGP PL spectra and they were also found to be independent of the solvent used. Gaussian deconvolution of the spectrum shows the presence of peaks

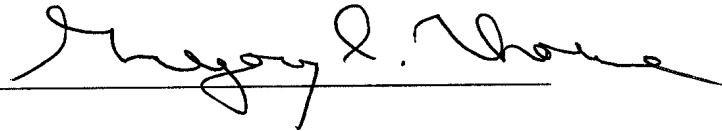
at 660 nm, 742 nm and 813 nm, which correspond closely to some of the features resolved in the MWNT spectrum." (See, Brennan, section 3.1, paragraph 2, page 59, as cited in the Office Action.)

Accordingly, it is respectfully submitted that claim 16 is allowable over Brennan and an indication to that effect is respectfully requested. Claims 17-21 respectively depend from claim 16 and accordingly are allowable for at least this reason as well as for the separately patentable elements contained in each of the claims. Accordingly, separate consideration and allowance of each of dependent claims 17-21 is respectfully requested.

In addition, Applicants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Applicants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

Applicants have made a diligent and sincere effort to place this application in condition for immediate allowance and notice to this effect is earnestly solicited.

Respectfully submitted,

By 

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